



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,020	11/24/2003	Akira Matsuda	032130	9168

38834 7590 03/04/2005

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

KOEHLER, ROBERT R

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/719,020

Applicant(s)

MATSUDA ET AL.

Examiner

Robert R. Koehler

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5, 6 and 8-19 is/are rejected.
- 7) ☒ Claim(s) 2 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**RRK**

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03042004; 05142004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 5,779,873 (Law, et al.).

Law, et al. discloses a nickel plating bath composition comprising nickel sulfamate and phosphoric acid having a pH less than 3. Law, et al. discloses a method of forming a resistance layer on a conductive base (nickel ferrite, copper) by using a sulfamate-phosphoric acid plating bath at a temperature of 35° C. See lines 46 to 53 in column 2 and lines 8 to 30 in column 3, including TABLE I.

2. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Kazanovtse, et al.

(WPI World Patent Information Derwent, Vol. 29).

Kazanovtse, et al. discloses a nickel plating bath composition for the deposition of nickel-phosphorus alloys on a cathode such as copper or stainless steel. The nickel plating bath comprises nickel sulphamate, nickel chloride, orthophosphoric acid, phosphorous acid, and zinc phosphate. Kazanovtse, et al. discloses a method of forming a nickel-phosphorus alloy coating on a conductive substrate by using a sulphamate-orthophosphoric acid-phosphorous acid plating bath under the following conditions: pH = 1.2 to 1.6; temperature = 70 to 75° C; and current density of 30 A/dm<sup>2</sup>. See the English-language Abstract in WPI World Patent Information Derwent.

***Claim Rejections - 35 USC § 102/§ 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 to 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,888,574 (Rice, et al.).

The Examiner has interpreted claims 8 to 19 as being product-by-process claims because these claims incorporate limitations from method claims 5 to 7 and limitations from plating bath composition claims 1 to 4. The Examiner notes that limitations from plating bath composition claims 1 to 4 are incorporated in product-by-process claims 8 to 19 *by the process limitation* that a nickel-phosphorous alloy layer is "formed on the surface of the conductive base by a method of formation of a thin resistance layer in a plating bath". See claims 8, 9, and 10.

Rice, et al. discloses a multilayered printed circuit board material and a method for producing the board material. The circuit board comprises a substrate, an electrical resistance material layer, and a conductive material layer (for example, a conductive layer of copper foil). The resistance material layer comprises a nickel-phosphorous alloy having up to 30 weight percent phosphorous, and the Ni-P alloy layer is produced by an electroplating technique whereby the plating bath utilizes nickel carbonate, phosphoric acid, and phosphorous acid. The Examiner notes that Rice, et al. teaches away from the usage of sulfate salts and chloride salts,

Art Unit: 1775

but Example 1 (column 3) does describe a nickel plating bath containing nickel sulfate and nickel chloride. Rice, et al. discloses plating bath temperatures and plating bath pH values which also lie within applicants' claimed temperature range and claimed pH value range. See lines 44 to 61 in column 1, lines 17 to 61 in column 2, and line 28 in column 3 to line 9 in column 5. Rice, et al. does not teach or suggest the usage of nickel plating baths that contain sulfamate ions, the usage of insoluble anodes, or the final surface roughness of the resistance layer. However, Rice, et al. does mention unexpected properties of the electroplated Ni-P resistance layer such as the absence of pitting whenever the nickel plating bath does not contain sulfate ions or chloride ions; see Example 5 in column 4. The Examiner believes that the nickel plating bath compositions and electroplating conditions disclosed by Rice, et al. would be expected to produce a nickel-phosphorous alloy layer on a conductive base that is suitable for a circuit board material because Rice, et al. discloses electroplated Ni-P alloys containing up to 30 weight percent phosphorous and the patent teaches electroplating conditions which are useful for obtaining a Ni-P alloy plating layer free of surface pitting.

In the event any differences can be shown for the product of the product-by-process claim(s) 8 to 19, as opposed to the product taught by the cited reference Rice, et al., such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. See also *In re Thorpe*, 227 USPQ 964. Any difference imparted by the product-by-process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the Examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that the claimed product is patentably distinct from the prior art product. See *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

***Allowable Subject Matter***

Claim 7 is allowed.

Art Unit: 1775

Claims 2 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The Examiner believes that the prior art does not teach, suggest, or disclose a *method* of forming a thin, nickel-phosphorous alloy resistance layer in a plating bath containing nickel ions, sulfamic acid or its salt, and at least one of phosphoric acid, phosphorous acid, hypophosphorous acid, and salts of the same by using an insoluble anode and a *plating bath composition* comprising **(a)** nickel ions, **(b)** sulfamic acid or its salt, **(c)** at least one of phosphoric acid, phosphorous acid, hypophosphorous acid, and salts of the same, **(d)** at least one of sulfuric acid, hydrochloric acid, and salts of the same, and **(e)** a plating bath pH not more than 6. See claims 7, 2, and 4.

### ***Conclusion***

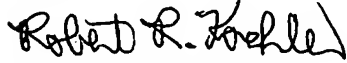
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is **(571) 272-1536**. The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to

Art Unit: 1775

the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

A handwritten signature in black ink, appearing to read "Robert R. Koehler". The signature is written in a cursive, slightly slanted style.

**ROBERT R. KOEHLER**  
**PRIMARY EXAMINER**

**Art Unit 1775**  
**February 25, 2005**